CL

PAGE: 1

RAW SEQUENCE LISTING PATENT APPLICATION US/08/117,363A

DATE: 12/09/93 TIME: 12:26:24

| 1 | | | SEQUENCE LISTING | |
|----------|---|--|------------------------------------|-----------|
| 2 | (1) G | eneral Information: | | ENTERE |
| 3 4 | (1) G | sherar informacion. | | |
| 5 6 | (i) | APPLICANTS: Manoharan Phillip D. Coo | , Muthiah k | |
| 7 | | | | |
| 8 9 | (ii) | TITLE OF INVENTION: AM OLIGONUC | INE-DERIVATIZED NUCLEO LEOSIDES | SIDES AND |
| 10 | | | _ | |
| 11 | (iii) | NUMBER OF SEQUENCES: 2 | :3 | |
| 12 | | SOPPESSOR APPRESS | | |
| 13 | (1V) | CORRESPONDENCE ADDRESS | o: ock Washburn Kurtz Mack | iewicz |
| 14 | | and Norris | CK Washburn Rares rack | 2011202 |
| 15 | | (D) CTDFFT. One Liber | ty Place - 46th Floor | |
| 16 17 | | (C) CITY: Philadelphi | | |
| 18 | | (D) STATE: PA | | |
| 19 | | (E) COUNTRY: U.S.A. | | |
| 20 | | (F) ZIP: 19103 | | |
| 21 | | (-, | | |
| 22 | (v) | COMPUTER READABLE FORM | | |
| 23 | | (A) MEDIUM TYPE: Flor | opy disk | |
| 24 | | (B) COMPUTER: IBM PC | compatible | |
| 25 | | (C) OPERATING SYSTEM: | PC-DOS/MS-DOS | 41 05 |
| 26 | | (D) SOFTWARE: Patentl | In Release #1.0, Version | n #1.25 |
| 27 | | | A TO A | |
| 28 | (vi) | CURRENT APPLICATION DA | | |
| 29 | | (A) APPLICATION NUMBE(B) FILING DATE: | SK: | |
| 30 | | (C) CLASSIFICATION: | | |
| 31 32 | | (C) CHASSIFICATION: | | |
| 33 | (wiii) | ATTORNEY/AGENT INFORM | ATION: | |
| 34 | (\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | (A) NAME: Lucci, Jose | eph | |
| 35 | | (B) REGISTRATION NUMB | BER: 33,307 | |
| 36 | | (C) REFERENCE/DOCKET | NUMBER: ISIS-1169 | |
| 37 | | | | |
| 38 | (ix) | TELECOMMUNICATION INFO | ORMATION: | |
| 39 | | (A) TELEPHONE: 215-56 | | |
| 40 | | (B) TELEFAX: 215-568 | -3439 | |
| 41 | | | | |
| 42 | | | | |
| 43 | (2) INEC | RMATION FOR SEQ ID NO: | 1: | |
| 44 45 | (2) INFO | RMATION FOR BEG ID NO. | - • | |
| 46 | (i) | SEQUENCE CHARACTERIST | ICS: | |
| 47 | ,_, | (A) LENGTH: 11 base] | pairs | |
| 48 | | (B) TYPE: nucleic ac | id | |
| 49 | | (C) STRANDEDNESS: si | ngle | |
| 50 | | (D) TOPOLOGY: linear | | |
| 51 | | | | |

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| 52 | | (ii) MOLECU | LE TYPE: | DNA | (genomi | .c) | |
|----------------------------|-----|-------------------|---|--------------------------|---------------------------|--------|------|
| 53 54 | | (xi) SEQUEN | ICE DESCR | IPTION | 1: SEQ | ID NO | 1: |
| 55 56 57 | | GGCTGACTGC | G | | | | 11 |
| 58 59 60 | (2) | INFORMATION | N FOR SEQ | ID NO | D:2: | | |
| 61 62 63 64 65 | | (B) 7 (C) 5 | NCE CHARA LENGTH: 2 FYPE: nuc STRANDEDN FOPOLOGY: | 0 base leic a ESS: | e pair: acid single | 3 | |
| 67 68 | | (ii) MOLECT | ULE TYPE: | DNA | (genom | ic) | |
| 69 70 | | (xi) SEQUE | NCE DESC | OITTIS | N: SEQ | ID NO | :2: |
| 71 72 | | CTGTCTCCA' | T CCTCTT | CACT | | | 20 |
| 73 74 75 | (2) | INFORMATIO | n for se | N DI Ç | 0:3: | | |
| 76 77 78 79 80 | | (B) (C) | NCE CHARA LENGTH: 7 TYPE: nu STRANDED TOPOLOGY | 20 bas cleic NESS: | e pair acid single | | |
| 81 82 83 | | (ii) MOLEC | ULE TYPE | : DNA | (genom | ic) | |
| 84 85 | | (xi) SEQUE | NCE DESC | RIPTIC | N: SEÇ | ID NO |):3: |
| 86 87 | | TTGCTTCCA | T CTTCCT | CGTC | | | 20 |
| 88 89 90 | (2) | INFORMATIO | N FOR SE | Q ID N | 10:4: | | |
| 91 92 93 94 95 | | (A) (B) (C) | ENCE CHAR LENGTH: TYPE: nu STRANDED TOPOLOGY | 18 bas cleic NESS: | se pain acid single | rs. | |
| 96 97 98 | | (ii) MOLEC | | | | | |
| 99 100 | | (xi) SEQUE | | | ON: SE | O ID N | |
| 101 102 | | TGGGAGCC | AT AGCGAG | :GC | | | 18 |

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| 103 | | | |
|------------|-----|---|----|
| | (2) | INFORMATION FOR SEQ ID NO:5: | |
| 105 106 | | (i) SEQUENCE CHARACTERISTICS: | |
| 107 | | (A) LENGTH: 20 base pairs | |
| 108 | | (B) TYPE: nucleic acid | |
| 109 | | (C) STRANDEDNESS: single | |
| 110 | | (D) TOPOLOGY: linear | |
| 111 | | 1-7 | |
| 112 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 113 | | | |
| 114 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5: | |
| 115 | | | |
| 116 | | CTGTCTCCAT CCTCTTCACT | 20 |
| 117 | | | |
| 118 | | | |
| 119 | (2) | INFORMATION FOR SEQ ID NO:6: | |
| 120 | | (1) ATTACHMENT OF THE PARTY OF | |
| 121 | | (i) SEQUENCE CHARACTERISTICS: | |
| 122 | | (A) LENGTH: 16 base pairs | |
| 123 | | (B) TYPE: nucleic acid | |
| 124 | | (C) STRANDEDNESS: single | |
| 125 | | (D) TOPOLOGY: linear | |
| 126 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 127 128 | | (II) MODECORE IIFE. DNA (genomie) | |
| 128 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6: | |
| 130 | | (XI) SEQUENCE DESCRIPTION. DEQ ES INC. | |
| 131 | | TCCAGGTGTC CGCATC | 16 |
| 132 | | | |
| 133 | | | |
| 134 | (2) | INFORMATION FOR SEQ ID NO:7: | |
| 135 | | | |
| 136 | | (i) SEQUENCE CHARACTERISTICS: | |
| 137 | | (A) LENGTH: 17 base pairs | |
| 138 | | (B) TYPE: nucleic acid | |
| 139 | | (C) STRANDEDNESS: single | |
| 140 | | (D) TOPOLOGY: linear | |
| 141 | | ()) vor norm n mund DNA /monomic) | |
| 142 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 143 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7: | |
| 144 | | (X1) SEQUENCE DESCRIPTION: SEQ 15 No. /: | |
| 145 146 | | GGACCGGAAG GTACGAG | 17 |
| 146 | | GUACCGUANG GIACOAG | |
| 148 | | | |
| 149 | (2) | INFORMATION FOR SEQ ID NO:8: | |
| 150 | (2) | | |
| 151 | | (i) SEQUENCE CHARACTERISTICS: | |
| 152 | | (A) LENGTH: 17 base pairs | |
| 152 | | (B) TVPE: nucleic acid | |

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| 154 | | (C) STRANDEDNESS: single | |
|-----|-----|--|----|
| 155 | | (D) TOPOLOGY: linear | |
| 156 | | | |
| 157 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 158 | | | |
| 159 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8: | |
| 160 | | (, <u></u> | |
| 161 | | CCTGGCCTTC CATGCTC | L7 |
| 162 | | | |
| 163 | | | |
| | (2) | INFORMATION FOR SEQ ID NO:9: | |
| 165 | (2) | INFORMATION FOR DDQ 12 HOLD. | |
| 166 | | (i) SEQUENCE CHARACTERISTICS: | |
| | | (A) LENGTH: 17 base pairs | |
| 167 | | (B) TYPE: nucleic acid | |
| 168 | | (C) STRANDEDNESS: single | |
| 169 | | (D) TOPOLOGY: linear | |
| 170 | | (D) TOPOLOGI: IIIlear | |
| 171 | | (''') WOT BOTT B. MYDE. DNA (gonomia) | |
| 172 | | (ii) MOLECULE TYPE: RNA (genomic) | |
| 173 | | () GROUNDER DESCRIPTION GEO ID NO. 0. | |
| 174 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9: | |
| 175 | | | |
| 176 | | CCUGGCCUUC CAUGCUC | 17 |
| 177 | | | |
| 178 | | | |
| | (2) | INFORMATION FOR SEQ ID NO:10: | |
| 180 | | | |
| 181 | | (i) SEQUENCE CHARACTERISTICS: | |
| 182 | | (A) LENGTH: 12 base pairs | |
| 183 | | (B) TYPE: nucleic acid | |
| 184 | | (C) STRANDEDNESS: single | |
| 185 | | (D) TOPOLOGY: linear | |
| 186 | | | |
| 187 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 188 | | | |
| 189 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:10: | |
| 190 | | | |
| 191 | | CCCAGGCUCA GA | 12 |
| 192 | | | |
| 193 | | | |
| 194 | (2) | INFORMATION FOR SEQ ID NO:11: | |
| 195 | | | |
| 196 | | (i) SEQUENCE CHARACTERISTICS: | |
| 197 | | (A) LENGTH: 12 base pairs | |
| 198 | | (B) TYPE: nucleic acid | |
| 199 | | (C) STRANDEDNESS: single | |
| 200 | | (D) TOPOLOGY: linear | |
| 201 | | | |
| 202 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 203 | | • | |
| 204 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:11: | |

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| 205 | | | 10 |
|-----|-----|---|-----|
| 206 | | GAGCUCCCAG GC | 12 |
| 207 | | | |
| 208 | | | |
| 209 | (2) | INFORMATION FOR SEQ ID NO:12: | |
| 210 | | | |
| 211 | | (i) SEQUENCE CHARACTERISTICS: | |
| 212 | | (A) LENGTH: 12 base pairs | |
| 213 | | (B) TYPE: nucleic acid | |
| 214 | | (C) STRANDEDNESS: single | |
| 215 | | (D) TOPOLOGY: linear | |
| 216 | | | |
| 217 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 218 | | | |
| 219 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12: | |
| 220 | | , | |
| 221 | | CAUGCUGCAGCC | 12 |
| 222 | | | |
| 223 | | | |
| | (2) | INFORMATION FOR SEQ ID NO:13: | |
| 225 | (2) | INFORMATION FOR EDG 12 NOVE | |
| 225 | | (i) SEQUENCE CHARACTERISTICS: | |
| | | (A) LENGTH: 20 base pairs | |
| 227 | | (R) TYPE, nucleic acid | |
| 228 | | (B) TYPE: nucleic acid(C) STRANDEDNESS: single | |
| 229 | | (D) TOPOLOGY: linear | |
| 230 | | (D) TOPOLOGI: IIIlear | |
| 231 | | (11) was some a minute para (manamia) | |
| 232 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 233 | | A A A TO THE TOTAL OF THE MOULTS | |
| 234 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13: | |
| 235 | | | ~ ~ |
| 236 | | GCCTTTCGCG ACCCAACACU | 20 |
| 237 | | | |
| 238 | | | |
| 239 | (2) | INFORMATION FOR SEQ ID NO:14: | |
| 240 | | | |
| 241 | | (i) SEQUENCE CHARACTERISTICS: | |
| 242 | | (A) LENGTH: 11 base pairs | |
| 243 | | (B) TYPE: nucleic acid | |
| 244 | | (C) STRANDEDNESS: single | |
| 245 | | (D) TOPOLOGY: linear | |
| 246 | | | |
| 247 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 248 | | | |
| 249 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:14: | |
| 250 | | | |
| 251 | | GCGTGUCTGC G | 11 |
| 252 | | | |
| 253 | | | |
| 254 | (2) | INFORMATION FOR SEQ ID NO:15: | |
| 255 | , | | |

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| 256 | | (i) | SEQUENCE CHARACTERISTICS: | |
|-----|-----|--------|-------------------------------------|----|
| | | (- / | (A) LENGTH: 18 base pairs | |
| 257 | | | (B) TYPE: nucleic acid | |
| 258 | | | (B) TIPE: MUCIETO della | |
| 259 | | | (C) STRANDEDNESS: single | |
| 260 | | | (D) TOPOLOGY: linear | |
| 261 | | | | |
| 262 | | (ii) | MOLECULE TYPE: DNA (genomic) | |
| 263 | | ,, | | |
| | | (aci) | SEQUENCE DESCRIPTION: SEQ ID NO:15: | |
| 264 | | (XI) | SECORNCE DEDONAL DEDONAL DES | |
| 265 | | | TAGGGAE ACCGAGGC 18 | |
| 266 | | UGG | GAGCCAT AGCGAGGC 18 | |
| 267 | | | | |
| 268 | | | | |
| 269 | (2) | INFO | RMATION FOR SEQ ID NO:16: | |
| 270 | (2) | | | |
| | | (;) | SEQUENCE CHARACTERISTICS: | |
| 271 | | (1) | (A) LENGTH: 18 base pairs | |
| 272 | | | (A) LENGIH: 10 Dase parts | |
| 273 | | | (B) TYPE: nucleic acid | |
| 274 | | | (C) STRANDEDNESS: single | |
| 275 | | | (D) TOPOLOGY: linear | |
| 276 | | | | |
| | | (44) | MOLECULE TYPE: DNA (genomic) | |
| 277 | | (11) | MODECOLL 11121 Date (5 | |
| 278 | | | SEQUENCE DESCRIPTION: SEQ ID NO:16: | |
| 279 | | (x1) | SEQUENCE DESCRIPTION. SEQ 15 NO.11 | |
| 280 | | | 10 | |
| 281 | | TGG | GAGCCAU AGCGAGGC 18 | |
| 282 | | | | |
| 283 | | | | |
| 284 | (2) | TNFO | RMATION FOR SEQ ID NO:17: | |
| | (2) | INTO | Italia and a second | |
| 285 | | (=) | SEQUENCE CHARACTERISTICS: | |
| 286 | | (1) | (A) LENGTH: 20 base pairs | |
| 287 | | | (A) LENGTH: 20 base pairs | |
| 288 | | | (B) TYPE: nucleic acid | |
| 289 | | | (C) STRANDEDNESS: single | |
| 290 | | | (D) TOPOLOGY: linear | |
| 291 | | | | |
| | | (++) | MOLECULE TYPE: DNA (genomic) | |
| 292 | | (11) | NORDEGIZE TITLE 1 | |
| 293 | | | SEQUENCE DESCRIPTION: SEQ ID NO:17: | |
| 294 | | (xi) | SEQUENCE DESCRIPTION. SEQ 12 NOTE: | |
| 295 | | | | 20 |
| 296 | | UCT | rgagtagc agaggagctc | 20 |
| 297 | | | | |
| 298 | | | | |
| | 121 | TNE | ORMATION FOR SEQ ID NO:18: | |
| 299 | (4) | TIAL | × | |
| 300 | | , , , | SEQUENCE CHARACTERISTICS: | |
| 301 | | (i) | ADJUDING CHARACTERIDITION. | |
| 302 | | | (A) LENGTH: 21 base pairs | |
| 303 | | | (B) TYPE: nucleic acid | |
| 304 | | | (C) STRANDEDNESS: single | |
| 305 | | | (D) TOPOLOGY: linear | |
| 306 | | | • | |
| 200 | | | | |

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| 307 | | (ii) MOLECULE TYPE: DNA (genomic) | |
|------------|-----|--|----|
| 308 309 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:18: | |
| 310 | | | 21 |
| 311 | | UGCCCAAGCT GGCATCCGTC A | 21 |
| 312 | | | |
| 313 | (2) | INFORMATION FOR SEQ ID NO:19: | |
| 314 315 | (2) | INFORMATION FOR BEQ 15 NO.231 | |
| 316 | | (i) SEQUENCE CHARACTERISTICS: | |
| 317 | | (A) LENGTH: 22 base pairs | |
| 318 | | (B) TYPE: nucleic acid | |
| 319 | | (C) STRANDEDNESS: single | |
| 320 | | (D) TOPOLOGY: linear | |
| 321 | | (::) MOT BOTH B. MWDE. DNA (GOROMIC) | |
| 322 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 323 324 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:19: | |
| 325 | | (AI) blgolikel blockly | |
| 326 | | UGCGTTTGCT CTTCTTCTTG CG | 22 |
| 327 | | | |
| 328 | | | |
| 329 | (2) | INFORMATION FOR SEQ ID NO:20: | |
| 330 | | (i) SEQUENCE CHARACTERISTICS: | |
| 331 | | (A) LENGTH: 20 base pairs | |
| 332 333 | | (B) TYPE: nucleic acid | |
| 334 | | (C) STRANDEDNESS: single | |
| 335 | | (D) TOPOLOGY: linear | |
| 336 | | | |
| 337 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 338 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:20: | |
| 339 | | (X1) SEQUENCE DESCRIPTION. BEQ 12 No.20. | |
| 340 341 | | UGCATCCCCC AGGCCACCAT | 20 |
| 342 | | 000.11.00000 11000 11000 | |
| 343 | | | |
| 344 | (2) | INFORMATION FOR SEQ ID NO:21: | |
| 345 | | | |
| 346 | | (i) SEQUENCE CHARACTERISTICS: | |
| 347 | | (A) LENGTH: 20 base pairs(B) TYPE: nucleic acid | |
| 348 | | (C) STRANDEDNESS: single | |
| 349 350 | | (D) TOPOLOGY: linear | |
| 351 | | | |
| 352 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 353 | | | |
| 354 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:21: | |
| 355 | | UCCCGCCTGT GACATGCATT | 20 |
| 356 | | OCCCGCCIGI GACAIGCAII | |
| 357 | | | |

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| 358 359 360 | (2) | INFORMATION FOR SEQ ID NO:22: | |
|-------------------|-----|---|-----|
| 361 362 | | (i) SEQUENCE CHARACTERISTICS:(A) LENGTH: 20 base pairs | |
| 363 | | (B) TYPE: nucleic acid | |
| 364 | | (C) STRANDEDNESS: single | |
| 365 | | (D) TOPOLOGY: linear | |
| 366 | | | |
| 367 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 368 | | THE TENTON OF THE NO. 22. | |
| 369 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:22: | |
| 370 | | | 20 |
| 371 | | GUTCTCGCTG GTGAGTTTCA | . 0 |
| 372 | | | |
| 373 | | | |
| 374 | | | |
| 375 | (2) | INFORMATION FOR SEQ ID NO:23: | |
| 376 | | | |
| 377 | | (i) SEQUENCE CHARACTERISTICS: | |
| 378 | | (A) LENGTH: 19 base pairs | |
| 379 | | (B) TYPE: nucleic acid | |
| 380 | | (C) STRANDEDNESS: single | |
| 381 | | (D) TOPOLOGY: linear | |
| 382 | | (| |
| 383 | | (ii) MOLECULE TYPE: DNA (genomic) | |
| 384 | | | |
| 385 | | (xi) SEQUENCE DESCRIPTION: SEQ ID NO:23: | |
| 386 | | | 19 |
| 387 | | UUGGGAGCCA TAGCGAGGC | エフ |

SEQUENCE VERIFICATION REPORT PATENT APPLICATION US/08/117,363A

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Line Error

Original Text

SEQUENCE MISSING ITEM REPORT PATENT APPLICATION US/08/117,363A

DATE: 12/09/93 TIME: 12:27:06

INPUT SET: S1102.raw

APPLICATION NUMBER FILING DATE PRIOR APPLICATION DATA

SEQUENCE CORRECTION REPORT PATENT APPLICATION US/08/117,363A

DATE: 12/09/93 TIME: 12:27:07

INPUT SET: S1102.raw

Line Original Text Corrected Text

5 (i) APPLICANTS: Manoharan, Muthiah (i) APPLICANT: Manoharan, Muthiah